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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/832,530	04/11/2001	Alain Dunand	33441	1249
7590 04/29/2004				
PEARNE, GORDON, McCOY & GRANGER 526 Superior Avenue East, Suite 1200 CELVELAND, OH 44114-1484			EXAMINER TRAN, LY T	
			ART UNIT	PAPER NUMBER
			2853	

DATE MAILED: 04/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/832,530	Applicant(s) DUNAND, ALAIN	
	Examiner Ly T TRAN	Art Unit 2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 January 2004.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 1-3 and 11 is/are rejected.
 7) ☒ Claim(s) 4-10, 12-21 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

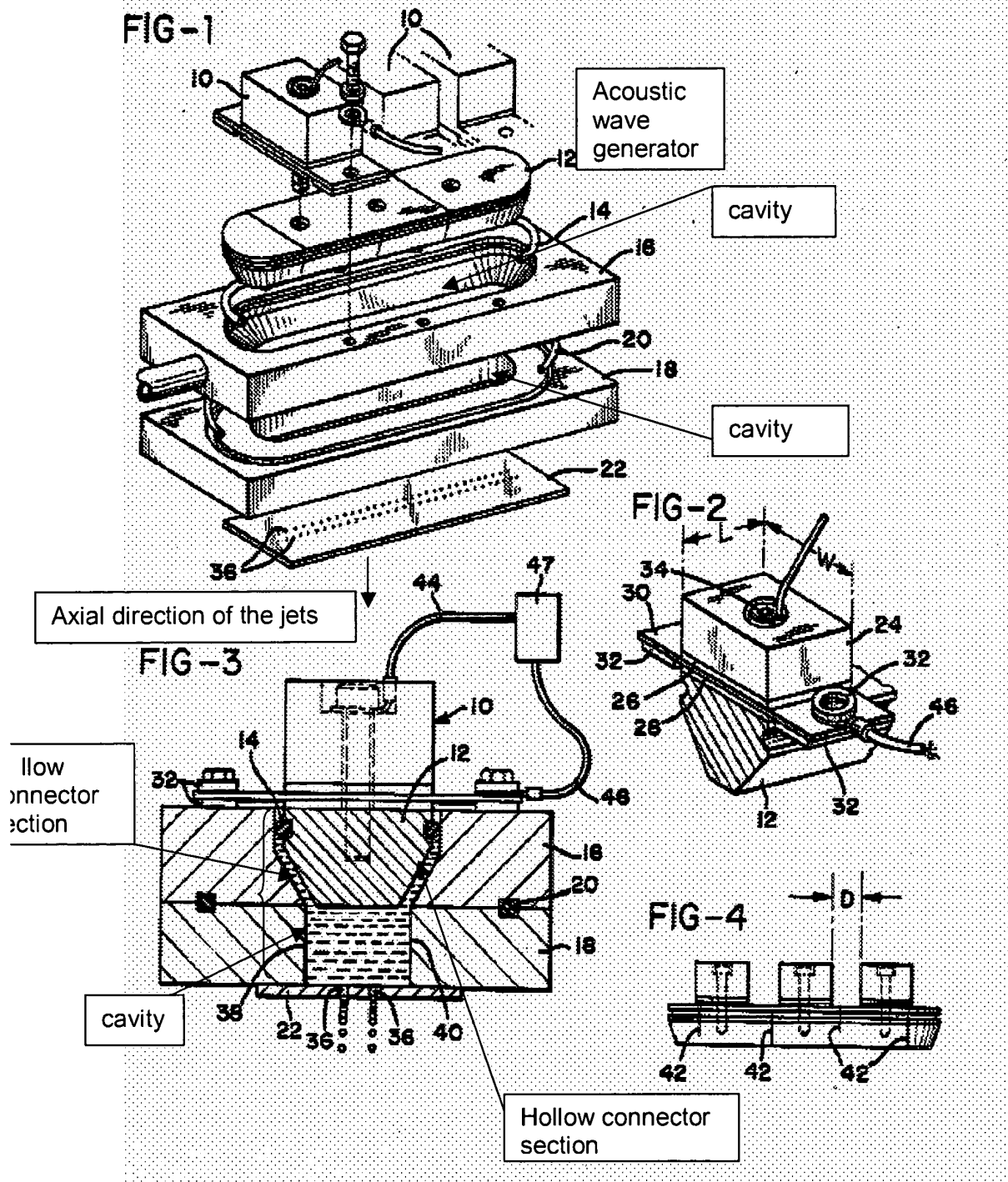
1. Claims 1-3 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Cha et al (USPN 4,138,687).

Cha et al. discloses an ink drop generator for an ink jet printer comprising :

- A generator body (Fig.1)
- At least one acoustic wave generator (ig.1: element 12) with a body elongated in an axial direction to the ink jet (Fig.1), each generator having a vibrating surface (The surface of the element 12) perpendicular the axial direction of the jets, at least one section comprising the vibrating surface of each acoustic generator being housed in a housing of the drop generator body (Fig1)
- One resonance cavity (Fig.2) intended to contain ink, a first section only of each cavity being constituted in a main section of the generator body and in this configuration, a second section in a continuation of the generator body connected to be leaktight to the generator body, each cavity having an ink feed, each cavity being defined particularly by a nozzle plate

(element 22) and a wall, the intersection of the wall and the nozzle plate defining a first plane contour line of the wall, the nozzle plate comprising a plurality of nozzles aligned along an axial direction of the nozzles perpendicular to the axial direction of the jets (Fig.1; element 36)

- A generator characterized in that the wall of each cavity is perpendicular to the nozzle plate (element 22), the first contour line being formed by two equal segments that parallel to one another and the axial direction of the nozzles, each segment having two ends: a first and a second end, the two first ends of each segment being connected by a first curved line and the two second ends of each segments being connected by a second curved line (when the nozzle plate, the manifolds 18 and the transducer holder are stack on each other, the contour is obtained).
- The curved line is concave toward the inside of the cavity (Fig.1)
- The first and second curved lines are constituted by semicircles the diameter of which is the space between the two equal segments (Fig.1).
- The acoustic-wave generator housing (16) and the cavity being connected by a hollow connector section (see figure 3 below)



Allowable Subject Matter

2. Claims 4-10 and 12-21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 4-6 are allowable over prior art of record because at least prior art does not disclose or teach that the largest measurement of the first contour of the cavity lies along the axial direction of the nozzles, the distance between two segments being approximately $1/4$ and the height of the wall being between $1/2$ and $3/4$.

Claims 7-10 are allowable over prior art of record because at least prior art does not disclose or teach that the acoustic wave generator housing and the cavity are connected by a hollow connector section defined by a lateral connector surface, the lateral surface having along the axial line of the jets, a lower limit in the cavity and an upper limit close to an acoustic generator housing, the upper limit of the transverse cross section of the surface being circular with a diameter equal to that of the acoustic wave generator housing, the intersections of these surface with the planes parallel to the nozzle plate, these planes being under the upper limit and above the lower limit, being closed curves the perimeter of which diminished when the intersection plane moves away from the upper limit.

Claims 12 and 15-21 are allowable over prior art of record because at least prior art does not disclose or teach that the nozzles of the cavity are equidistant and that the distance between an end nozzle of an end cavity of the body and a section of the

external wall of the body located at the intersection of the wall with the jet place is shorter than half the distance between two consecutive nozzles of the nozzle plate.

Claims 13 and 14 are allowable over prior art of record because at least prior art does not disclose or teach that the distance between two end nozzles and two consecutive cavities of the same body is equal to the distance between two consecutive nozzles of the same cavity.

Response to Arguments

3. Applicant's arguments filed 1/12/04 have been fully considered but they are not persuasive.

Applicant's argument that Cha does not teach the acoustic wave generator with a body elongated in an axial direction to the ink jet, each generator having a vibrating surface perpendicular the axial direction of the jets is not persuasive because figure 3 shows the acoustic wave generator is extending in direction along the axial direction of the ink jet and a vibrating surface perpendicular the axial direction of the jets. Even the figure 1 show the acoustic wave generator that is elongated in a direction perpendicular to the ink jets but figure 3 also shows the acoustic wave generator with a body elongated in an axial direction to the ink jet. Also, Cha teaches the acoustic-wave generator housing (16) and the cavity being connected by a hollow connector section (see figure 3 below).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ly T TRAN whose telephone number is 571-272-2155. The examiner can normally be reached on M-F (7:30am-5pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Meier can be reached on 571-272-2149. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LT

April 23, 2004



Stephen D. Meier
Primary Examiner